

**Receipt is hereby acknowledged for the following in the United States Patent and Trademark Office:**

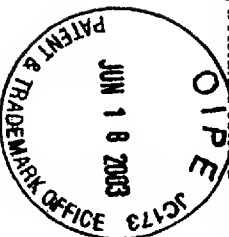
In re Patent Application of: Qing Ma et al.

Title: DIRECT BUILD-UP LAYER ON AN ENCAPSULATED DIE PACKAGE  
Serial No.: 09/640961  
Filing Date: August 16, 2000

**CONTENTS:** An Amendment and Response Under 37 CFR 1.111 (18 Pages); An Information Disclosure Statement (1 pg.), Form 1449 (1 pg.), and copy of 1 cited document; A check in the amount of \$ 180.00 to cover the fee for consideration of Information Disclosure Statement under 97(c); a Return Receipt and TRANSMITTAL SHEET.

Mailed: June 13, 2003  
CES/kml

Docket No.: 884,792US1  
Due Date: June 13, 2003



DUPLICATE

S/N 09/640961

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Qing Ma et al.	Examiner:	Sheila Clark
Serial No.:	09/640961	Group Art Unit:	2815
Filed:	August 16, 2000	Docket No.:	884.792US1
Title:	DIRECT BUILD-UP LAYER ON AN ENCAPSULATED DIE PACKAGE		
Assignee:	Intel Corporation		

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

DUPLICATE

Applicants have reviewed the Office Action mailed on March 13, 2003. Please amend the above-identified patent application as follows.

PRELIMINARY REMARKS

Applicant notes that the same rejections and the identical, or virtually identical language in the rejections were employed in the two Office Actions, mailed on March 13, 2003 and August 13, 2002.

The Office provided definitions without citing all sources drawn upon. The recently cited source, <http://www.maxmon.com/et.htm> is unacceptable and should be withdrawn. As noted in a previous response, the definition is clumsy, not academic, and unprofessional.

trace-a conducting connection between electronic components. May also be called a track or a signal. In the case of integrated circuits, such interconnections are often referred to collectively as metallization.

Applicants note this definition refers to a trace in the singular, "a conducting connection". Next the definition lacks an antecedent for the following term, in the plural, "such interconnections are often referred to collectively as metallization." This definition suffers from a disconnect between the singular term "a connection" and the plural term "such interconnections". But without further information, Applicants respectfully assert that the definition provided by the Office, defines a trace as a connection in the singular, and metallization as a collection of "traces," "such interconnections" (ibid.) in the plural. Because Applicants teach and claim a trace, and the cited reference teaches only "metallization", withdrawal of the rejections is respectfully requested.

Applicants respectfully request all definitions asserted by the Office be provided with their citations, and made of record.

Applicants respectfully assert the structures in the cited references are different from the structures disclosed and claimed in the instant application. Details of differences will be set forth in responses to the various rejections. Applicants respectfully request the Office to consider the language in the claims "trace" and "in electrical contact with" to define the structure of Applicants' conductive trace, *e.g.* "conductive trace 124", depicted in FIG. 1j.

Regarding the claim terminologies, "conductive trace" and "in electrical contact with," Applicants direct the Office to M.P.E.P. §2173.01 Claim Terminology.

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not used in ways that are contrary to accepted meanings in the art.

(M.P.E.P. §2173.01, 8th Ed., Rev. 1). To support Applicants' use of the claim language "trace" and "in electrical contact with", as accepted meanings, Applicants have cited to the on-line dictionary employed by the Office in the Office Action mailed August 13, 2002, to wit:

trace 1. A line or "wire" (note the singular) of conductive material such as copper, silver or gold, *on the surface* of or *sandwiched* inside a PCB, printed circuit board. These traces (note the plural refers to "(1)on the surface of or (2)sandwiched") are often called individually a run. Traces carry an electronic signal or other forms of electron flow from one point to another. Traces that are *on the surface* of a board (commonly understood to be a planar object) are covered with a non-conductive coating, except at *contact* or solder points, to keep unintentional contact from being made with other conductive surfaces.

(Computer, Telephony & Electronics Industry Glossary

<http://www.csgnetwork.com/glossaryt.html>, comments and emphases added).

contact 1. A point of junction in an electrical circuit. By mechanical or electrical means, they can be switched, on or off, closed or open. Contacts that when "closed" connect a pair of wires together and disconnects the wires when "open". A doorbell button is a simple example of a momentary contact closure.

("Computer, Telephony & Electronics Industry Glossary"

<http://www.csgnetwork.com/glossaryc.html>, emphasis added). Applicants respectfully assert

that the phraseologies "on the surface of" and "sandwiched inside", call to mind significant and major portions of elongate and laterally running structures, and not the construction provided in the Office Action. Applicants note that claim 1 requires a

at least one first trace (singular) disposed on said first dielectric material layer and in electrical contact (point of junction) with said microelectronic die active surface

(Claim 1, comments added). Because the Office has chosen to define "trace" by providing a definition from the online dictionary, "Computer, Telephony & Electronics Industry Glossary", Applicants respectfully insist the term "in contact" as used in claim 1 and as defined by the same dictionary, requires a single junction in an electrical circuit, and that single junction is at the active surface. Applicants further respectfully assert that these definitions match the structures as disclosed and claimed, and that they are therefore, not "contrary to accepted meanings in the art." (M.P.E.P. §2173.01, 8th Ed., Rev. 1). Withdrawal of all rejections is therefore requested.

Applicants note the comments in the Office Action, beginning at page 5. At page 5, the Office Action stated:

Contrary to applicant's assertions in the most recent response, Donovan clearly teaches a (sic) and show a heat dissipation device 40 which is shown formed on the back surface of the microelectronic device shown in figure 4.

Applicants respectfully assert this statement is incomprehensible and should be withdrawn.

At page 5, the citation of <http://www.maxmon.com/et.htm> has been addressed, supra.

At page 5, the Office Action stated

The definition that the applicant provided (a uniform metal or doped semiconductive structure, a significant portion of which is elongated and runs laterally when viewed in proper cross section) relative to the definition of trace is not deemed to be persuasive. Contrary to applicant's argument the well know definition of trace in this technology is deemed to be only an conductive metal layer which may be electrically conductive.

Although Applicants consider Applicants' definition to be technically correct, Applicants withdraw this definition, and rely upon the definition of trace provided by the Office, at <http://www.csgnetwork.com/glossaryt.html>.

At page 6, the Office Action stated

And further contrary to applicants argument said trace does not have to run in any particular direction (i.e. laterally) and is a conductor not necessarily a semiconductive structure though a trace may be contained in a semiconductor structure and may have semiconductive characteristics. Therefore the office action is deemed to appropriately define components 134, 132 and 110 as traces.

Applicants note that the definition provided by the Office, at <http://www.csgnetwork.com/glossaryt.html>, does not positively state anything other than "on the surface of or sandwiched inside a PCB." "On the surface" refers to something parallel or coplanar with a surface of a board. "Sandwiched" refers to something parallel or coplanar inside two parallel planar surfaces, one of which is a board. Except for Chung's trace (metal layer 110), neither term in "on the surface of or sandwiched inside a PCB" calls to mind Chung's "via conductor 132b", "oxidation-resistant material 134b", and "bump 144".

At page 6, the Office Action stated

Applicant further argues that "in electrical contact" is well known to mean one structure physically touching another structure". Contrary to applicant's argument two electrical components may be located on different areas of circuit boards or chips and be located in different rooms, buildings, etc. be in electrical contact. Physical contact is not a requirement of being in electrical contact". "In electrical contact" is a interactive relationship between electrical energy or current, not necessarily physical contact. Trace 110 is clearly in electrical contact with the active surface of chip 140 via trace 132 and trace 132 is show to be in electrical contact with chip 140 via metal layer 134 and etc. Also contrary to applicants assertions, col. 5 lines 12-15 of Chung teach that the network of components (integrated circuit and or passive components) of chip 140 are attached to metal layer 110.

Applicants respectfully assert that the Office Action misquoted from Chung and reached an illogical conclusion. A complete-sentence quote of Chung at column 5, lines 12-15 states:

An electronic device 140, such as a semiconductor die, an integrated circuit or a network of resistive, inductive and/or capacitive elements, or the like, is *attached* to metal layer 110 *and* dielectric 120.

(Chung at column 5, lines 12-15, emphases added). Applicants note that Chung indicates his electronic device 140 is "attached" to his dielectric 120. Chung's meaning of "attached" is

generic and not electrical. It is error to assert Chung is using the phrase "device 140 . . . is attached to . . . dielectric 120" as equivalent language to "in electrical contact with" as set forth in claim 1. This assertion should be withdrawn.

At page 7, the Office Action stated

Contrary to applicant's other arguments such as "dielectric 120 disposed over said one trace". Dielectric 120 is clearly shown to be "disposed over" the rear surface of trace 110, the side surfaces of trace 132 and the top surface of trace 134. Contrary to applicant's view the term "over" does not necessarily mean "on the top surface of". Whereby one definition reads: over- across a barrier or intervening space.

Applicants respectfully suggest that it pushes the limits of credibility to consider the phrase "disposed over the rear surface" to refer to the position of Chang's dielectric 120 with respect to Chang's trace 110, unless one literally twists the meaning by physically turning Chang's patent document upside-down. Applicants cannot account for every obscure meaning of the word "over", but only for its ordinary meaning with respect to the cited references.

Withdrawal of the rejections is respectfully requested.